PyroTechnics

THE NOW & THEN NEWSLETTER OF
GENERAL TECHNICS

PERPETRATED LARGELY BY
JEFF DUNTEMANN
& CAROL DUNTEMANN

NO. 21   JULY   1979

CREATIVITY

Whence comes this hunger to learn, to explore, to build, to search, to create, to know?

There's no doubt about it. I'm different, and so are you. If you weren't, you'd be down at the Meet Market Bar, wondering why you're so bored and unhappy. Instead you're drawing cartoons, jotting down filksongs, cramming lasers into baseball bats, writing the ultimate Star Trek game for TRS-80, building radios, power supplies, computers, SF models, writing stories, growing exotic herbs, erecting geodesic domes: joyfully goosing the universe out of your full measure of wonder and knowledge.

It's more than just an optional diversion, whether you realize it or not. It's a need, it's far more habit-forming than smoking, and you can no more stop creating than you can stop eating. Maybe for awhile. But eventually the feeling comes back and gnaws until you give in and do something.

The need is non-specific. That is, I often feel the need to write, but if I can't write I can often go downstairs and spin something off on the lathe and feel a lot better for it. When Chuck Ott can't write he settles down at his drawing board and knocks off TickTockTech ads. Eventually he feels "clean" again and good about himself. The drive doesn't care very much what it's applied to, but it's very insistant about being applied to something.

Nor does feeling the drive necessarily mean you'll be good at something. Feeling the need to write doesn't automatically make you a good writer. The discipline and hard work required to accomplish something come from elsewhere. Creativity is not easy. (An expert is one who does something difficult and makes it look easy, but that's another matter.) If you're wise you'll supply the energy and concentration to get good at your task, so that the creative drive will be satisfied. Otherwise you can fall prey to frustration and depression, which are a whole lot worse than creative constipation.

I have a well-known bias against drugs, which comes at least partly from experience. I smoked dope a couple of times, would you believe, because some friends said it would help me write. It was pretty damned awful. The initial buzz was novel and tepidly pleasant, but for days afterward I was unable to summon the motivation to accomplish anything. I felt the creative urge, as always, but I simply could not bring myself to do anything about it. The pit of depression it threw me into seemed bottomless. I felt like a vegetable. Fulfillment, it seems, comes from within, through the exertion of effort toward some end. The phony fulfillment of drugs, achieved without effort and impressed from outside, blocks true creativity by destroying motivation. It's a lazy man's way out.

Why are we creative? I had a satisfying theory at one time that it takes an unhappy childhood, or at least a lonely childhood, to be creative. (Remember the Fractured Fairy Tales cartoon about the Shoemaker who wanted to make a singing shoe? As the elves told him, "Ya gotta suffer." Something like that.) I've since run across a number of people who have never been lonely or maladjusted, and are marvelously creative. Scratch one theory.

It's probably an inborn predisposition which has sound evolutionary reasons. The creative hominid hunter who got crazy one day and dug a hole for passing animals to fall into was better fed and raised more offspring than the dumbass hominid who still chased wild boars with a pointed stick. Obviously, this inborn craziness can be either encouraged or stifled by parents, and I've seen a definite tendency among GT people to have understanding parents who at least allowed (and usually encouraged) creative flights of fancy. Advice to prospective parents would be to tolerate junk collections, provide pencils and paper and (later) a clunker typewriter, and try your best to be interested in the results.

When I spoke of drugs before, I didn't mention the worst drug of all, the one that has undoubtedly destroyed more creative motivation than any other force in history: Television. A good many teachers have told me that the children of fifteen years ago were vastly more willing to explore and experiment than the children of today. Today's children go to school, it seems, and wait for the show to start. The attitude is that education is something that is done to you via some hocus-pocus performed by the teacher and whatever magical gadgets the teachers have conned out of the taxpayers. The idea that education comes from within seems to have fallen away. Why? Well, when children spend most of their waking hours immobile in front of a flickering screen, what can you expect? It colors their whole view of human activity. It leads them to expect that education, entertainment, and everything else comes out of a pill or a screen, and that no effort is required from the end user. Reading requires effort. So children don't read much anymore. I'm not surprised at all.

This new generation of observers seems to be growing up timid, and stupid, and hostile to most things they don't understand, which is most of technology and much of everything else. They are unwilling to take risks, and insist that everything must be utterly without danger. The creative process is a process of trial-and-error. It involves risks, and has been known to be dangerous. I'm also not surprised that creativity seems to be going out of style.

Fortunately, this human refuse doesn't do much but sit there and take orders, so with a little luck the rest of us can ignore them and keep mankind going on its way to understanding the universe and exploring its furthest reaches. Whatever you do, remember that anything worth doing is difficult, and that if we give over the creative drive to drugs and flickering screens, we give up one of the forces that first made us human.

Television is a marvelous instrument of creative expression. Buy your children one. Take out the picture tube, give them a soldering iron and diagonal pliers, and see what they can make out of it. You may be pleasantly surprised.

GENERAL TECHNICS is an organization of
    fannish techies (and not techish
    fannies, as some wiseass reported)
    who share data, resources, and
    experience in pursuit of a good time
    and occasional profit. The group
    meets mainly at cons, hamfests, and
    private Berserker Weekends
MEMBERSHIP is terribly difficult to
    obtain. you must somehow scrape up
    a number of 15¢ stamps, and then at
    great effort write a letter explain-
    ing what your qualifications as a
    techie are to

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    including those stamps. If the
    abovementioned person can read
    your handwriting you are an
APPRENTICE TECHIE and entitled to call
    yourself a member of General Technics.
    You will also receive
PYROTECHNICS until your stamps run out.
    Renewal of membership is synonymous
    with sending more stamps. If you
    decide to quit, we will use one of
    your stamps to send the rest back to
    you. If you're nuts enough to want
    to become a
SECRET MASTER UV TECHNOLOGY (SMUT)
    you had better write to

        Tullio Proni
        530 West Walnut
        Kalamazoo MI 49007

    because I don't have anything to do
    with it.
ANYTHING ELSE, ask me. I may not know
    but I guess better than anybody else
    around here.

*THE
ADVENTURES
OF
Astro-Snake*

BY
CHRIS
CLOUTIER

QUARKS

One more of our number moves to Crazy
California in the person of Jim Ransom, pursuing a
new job with Hughes. When I last spoke with Jim,
he had put $44,000 down on a rabbit hole on the
outskirts of the Mojave desert. The rabbits had
been holding out for $300,000 but decided to sell
after the most recent earthquake folded the master
bedroom in half and stuffed it into the broom
closet. Good luck, Jim.

Todd Johnson's Laserville Slugger~ is up and
running. What must be one of the great scrounge
triumphs of all time involves Todd's pouring a
laser into a specially-modified aluminum baseball
bat. He cut and polished the bat in such a way as
to make it look like anything but a bat, and the
smooth curve of the muzzle is alarmingly
realistic. Check it out if you see Todd. First
class.

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What makes you think I don't like
California???

Marie Bartlett and her Bacterial Horde write
to tell us that when stamps become inseparable
buddies you can divorce them by putting them in
the freezer for awhile. Just don't mix them up
with the lima beans. Please.

Jane Ellen Olsen's partnership, Aardvark
Technical Services, sells some nifty-sounding
software for OSI computers. They are largely
video games, and some sound damned fine. Get a
list from her.

Rod Smith finally popped for a TRS-80. How
many million of those muthers are out there by
now?

An arsonist put the torch to Jann Frank's
apartment building, but the Frank got out alive
with all her worldly goods. Buy a rabbit hole,
Jann. They're fireproof and a whole lot cheaper
in Shawnee, Kansas.

John Bane says that schools and colleges
sometimes pitch HeNe lasers because those sneaky
little helium thingies leaked out of the tube. If
you can get your hands on such a laser, put it in
a plastic garbage bag and pump the bag up with
helium. The gas will leak back into the tube, and
if you feed the laser power while it's in the bag
you will see the beam slowly come to life and get
brighter and brighter over the next few hours.
Just be careful not to let the helium-filled
garbage bag lift off with your laser inside it.
You'll get the damndest UFO reports for the next
day or so until the Air Force shoots it down.

Cathy Hudson, having garnered some heavy
muscles hoisting beers at MTU, has transferred to
Purdue, where she will begin stage II in her
body-building program by hoisting boilermakers.
If there are any other boiler-hoisters in GT she
would like to hear from them, since being alone
amidst 30,000 boilerpersons could make a single
girl's blood boil with lonliness.

Your editor recently sold yet another story to
Asimov's Magazine, "Guardian." As the editor
there has yet to print "Cold Hands," which he
bought nearly two years ago, expect to read it
about 1996. I promise to autograph it, if I
haven't died of old age.

George Ewing will be devoting some time this
summer to writing a novel about the Nazis invading
the Upper Peninsula in 1944. Hey, if I could
write about Nazis with a straight face I would
too; many far lesser writers than George have
gotten rich off it.

Steve Johnson just took a job with Bell Labs
in Columbus and wound up in paradise. They have a
computer assisted machine shop that they heartily
encourage employees to use after hours, and will
subsidise original engineering projects undertaken
in spare time.

Nikki Ballard was accepted at the Clarion SF
Writers' Conference at Michigan State this summer.
Good luck, Nikki, and tell old Uncle Lenny he
hasn't seen the last of Jeff Duntemann.

Todd Johnson got a job at Fermilab for the
summer, doing some maintenance work on a liquid
helium pipe. Read "Cold Hands," Todd, if you live
that long. Todd is crashing at Bill Higgins's
until school starts again.

Angel Insley won a very large scholarship to
the University of Chicago to pursue a program in
mathematics. After she cracks the Unified Field
Theory she will be starting work on a hyperdrive.
Hell, if you physicists can't do it...

Cosmac freaks should write to Micro Systems,
807 Cedar Circle, Spencerport NY 14559 and ask for
information on the 1802 CPU board they sell. This
is the first truly mature COSMAC product I've
seen. The board is small (4 X 6) yet has room for
2K RAM and any one of the 2704/2708/2716/2732/2764
family EPROM. RS232C is standard. The board can
be jumper- configured just about any way you like
it, and will accept either the 1802 or the
silicon-on-sapphire 1804 which (so rumor has it)
may be pushed close to 10 Mhz. Check it out.

DARK STARLOST IN SPACE: 1999 BOTTLES OF BEER ON THE WALL!
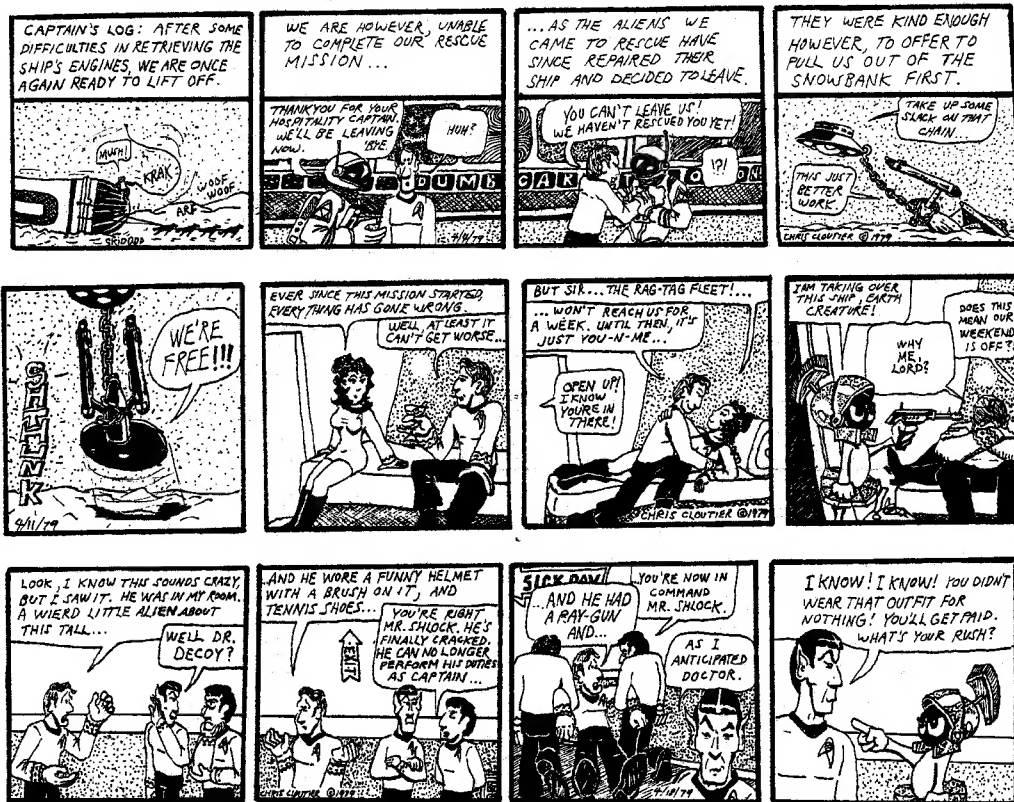
Bill Colsher had an extensive article on the TRS-80 published in the June 11 issue of Computerworld, p. 85. It's as good a breakdown of TRS capabilities as I've seen. Also check out Bill's article on TRS-80 graphics in the July '79 Kilobaud.

Mike Okuda publishes The Pacific Communicator, an irregular (in the same fashion as PyroTechnics) newsletter covering SF and fantasy in the media. Mike sent me a few copies, and it is dynamite. Mike knows how to cram one hell of a lot of good data into two pages, and does it in a style that beats that of Locus for interest and readability. He can be contacted on the PLATO nextwork, or write to him. Subscriptions are $2.50 for ten issues. If you're really going to subscribe, write to the TPC business manager, Coni Hanson, 232 Kaiulani Ave. #204, Honolulu HI 96815. You can get a sample issue for an SASE. Do it.

Now it can be told. SHEA means Smith, Hillis, Evans, & Associates, including our very own Mark Evans. These people rent communications packages for conventions including Motorola hardware and all the knowhow to make it work. Their base unit is a 15 watt MAXAR-15, and the handhelds are MX-330's. That's good gear, people. Typical cost for a weekend convention ranges from $275 to $550, depending on what you want. Mark has a very good flyer describing the details. Anybody who's fond of running conventions is nuts if they don't have this flyer on file.

Dr. Dobbs' Journal is having a contest to design a logotype/symbol for the publication. I know there's a lot of good graphics talent out there, so pick up a copy and read the details. Prizes are subscriptions, but it's generally a good rag.

I'm gathering material for yet another special issue of Pyro on the subject of energy. I need articles. I'm involved in a photovoltaic cells project, but I am utterly ignorant of biomass and methane generation. I would like to see data on making lawn mower engines run on alchohol, and (for that matter) on making alchohol. Wind turbines are another hot area. See what you can come up with.

I'm having a little trouble with the Information Handbook. Be patient; it's just involving a little more software than I thought it would.

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SAY - YOU'RE KIND OF CUTE, FOR AN OXYGEN BREATHER.

HIGGINS

3
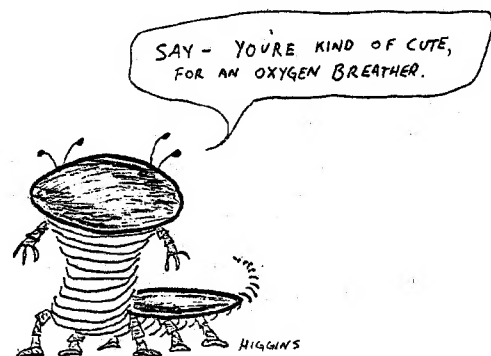
THE COMPUCOLOR II

A lot of you have been going through the same torment, judging by the mail. You want a "big" computer. (Something bigger than a COSMAC ELF, at any rate.) Whatever you do, it's gonna be a chunk of money. Which one will it be?

I've been pondering it for more than a year. Because there is safety (and software) in numbers, I looked especially close at the Big Three: TRS-80, Apple II, & PET. None filled the bill. The TRS DOS seemed to have more bugs than a Georgia motel. Apple's color graphics were muddy-tinted and smearily defined. PET has a keyboard better suited to hamsters than human fingers, and I hate casette I/O. I checked out the Sorcerer. That ROM-filled 8-track cartridge is a damned fine idea--but the documentation consisted of a pair of little books about as big (taken together) as a thin Reader's Digest. Also, ARESCO (the outfit that puts out VIPER, the superb COSMAC VIP newsletter) tried to start a Sorcerer newsletter and could not even get anyone at Exidy to talk to them. Bad sign.

With those out of the way, what's left in personal computing is debris. I bought one of the debris, a Compucolor II. Let me tell you why.

Check this out: for $1500 you get the following:

1. An 2Mhz 8080A machine with 16K worth of ROM software, including BASIC, a File Control System, terminal software, and BASIC-independent vector graphics.

2. A 51K minifloppy and 8K RAM

3. A 75 Mhz 13 inch color monitor, guaranteed not to "burn in" a frequently displayed pattern. Colors are much brighter than those of a standard broadcast TV set, especially one fed with a video modulator.

4. An RS232C interface with selectable baud rate, full/half duplex mode, and all controlling software on ROM.

What machine can touch that for $1500? Nothing that I could find. I bought some options, including full 32K RAM, that brought the final price up to $2200, but next to the other machines my system looks awful good.

Before I go on, there were some drawbacks. The lower case option is expensive ($200). Only Compucolor's floppies will work in it; I'm not sure why. At least they cost no more than other people's. Graphics resolution is not as high as some (128 X 128). The disk drive is mounted next to the CRT, right there in the same cabinet, and this makes for more read errors than your typical floppies. And I fully realized there wouldn't be a tenth the available software as you could buy for an Apple II.

But what the hell. Life is a compromise. The beast worked right out of the box, and I've had no trouble with it. The Northeast regional distributor is right here in Rochester (Compuworld) and he does repairs at the shop. There are about a hundred Compucolors in the immediate area, and there is a user's group meeting once a month. I've gotten a couple of disks full of free software written locally, and some of it is dynamite. But all of those are advantages of location.

The machine itself contains two microprocessors: the 8080A and a TMS 5027 dedicated video controller. This frees the CPU from video refresh and formatting busywork and makes for faster execution of programs. The 5027 can be controlled directly or through BASIC by giving it a series of hex bytes between 0 and 255. Since many of the 1-byte commands influence the nature of following commands, the number of possible commands is enormous.

This is best illustrated through BASIC, by one of the damndest statements I have ever seen: PLOT. PLOT is followed by one or more numbers from 0 to 255, separated by commas. Pretty near anything that machine can do can be coded up in a PLOT statement. For example:

PLOT 12 erases the screen.
PLOT 31,36 prints a blinking dollar sign.
PLOT 27,13 sends all input out the RS232C port.
PLOT 27,6 sets the terminal software to Full Duplex.
PLOT 1 loads and runs a program named MENU from the disk.
PLOT 27,10 makes the inputted line write vertically.
PLOT 12,20,31,97,10,118,96,119 prints a blinkir royal-blue duck in the upper left hand corner of the screen.

and so on. The more numbers you hang after PLOT, the more complicated, bizarre things you can make the computer do. I discovered how to print a duck by accident; I was actually trying to figure out Blind Cursor Mode.

Furthermore, PLOT's arguments may be variables or numeric expressions, which adds another order of infinity to the possibilities. The manuals say a lot about each individual command; they say a good deal less about combining them. And there are so many possible commands that I haven't figured out a tenth of them yet.

The rest of BASIC is on a par with TRS Level II. It has floating point, arrays, and string handling functions. I miss TRS's ability to check a key "on the fly" without waiting for input, but I kluged up the same ability using PEEK and the memory map.

The File Control System lets you store, rename, load, delete, and run a number of different kinds of files. When you delete a file in the middle of the disk, the FCS repacks the disk using the screen refresh RAM as a buffer. This makes for some mighty interesting light shows...

>>>>>>(4 WEEKS LATER)<<<<<<<<

As the people at our party saw, some problems have crept into paradise. I started getting some read errors off my disks. I hauled the thing back and found that the machine itself was OK; Compucolor had formatted some of their blank disks wrong. In the process I found out why Compucolor insists you buy blank, formatted disks from them. They figure that if all blanks come off the same formatter, they will be readable by all Compucolor machines. (I should point out that these are soft-sectored disks.) Looks like they blew it, but I got some new disks in the bargain. Does anyone out there know if formattting differences on soft-sectored disks have been a problem with other machines? Or is this just a smokescreen for a disk monopoly?

I also bought a data base program, and I am currently putting up the Information Handbook on the data base. This means I will be able to query the system and print out a list of names of all members who claim knowledge (for example) of FORTRAN or bacteriology, or whatever else you have. It's an exciting idea.

I have a selectric terminal which understands EBCDC, and I'm working out a program to have my VIP mediate between the Compucolor and the terminal. This will enable me to print listings of the Mob and other things without relying on a phone link to the Diablo 3200 here at work.

An editor, assembler, and compiled BASIC have just become available, and I've heard that Instant Software is about to release 4 Compucolor program disks. Looks like the machine is about to graduate from the debris class. If you've got the money, I heartily recommend it.

GREAT FANNISH COVER-UPS #1

ON MARCH 12, 1979: JEFF & CAROL DUNTEMANN AND THEIR ROBOT COSMO SUPPOSEDLY LEFT CHICAGO AND MOVED TO NEW YORK - NEVER TO BE SEEN AGAIN. ONLY RECENTLY A COVER UP BY GENERAL TECHNICS WAS EXPOSED AND THEIR REAL FATE REVEALED. A FAULT IN THE MOTOR-DRIVER TRANSISTORS OF COSMO CAUSED A RAPID OVERHEATING AND SUBSEQUENT MELTDOWN OF ALL THREE.

AN INVESTIGATION OF THE ENTIRE ROBOTICS INDUSTRY IS SCHEDUALED TO BEGIN AS SOON AS THERE IS A ROBOTICS INDUSTRY.

ZAPS
FROM THE BACKWOODS
DE GEORGE EWING

Golden Oldie Department: Just saw a screening of the early 60's comedy ZOTZ, by Columbia, starring Tom Poston. This is a classic with the older fans, but it has been hard to see as of late. If you're one of the new generation of techiefen who've never seen it, watch for it. The plot, centering around an ancient coin with magic powers, seems old hat today, but remember, it came out well before Bewitched, I Dream of Jeannie, and all those Nutty Professor things Disney did with Fred McMurray, and this was a pioneering effort yet to be equalled.

The charm of the show is the sympathetic characterization by Poston of a gentle, slightly goofy academic type who suddenly acquires godlike powers to kill and destroy at will. There is slapstick galore, but it is interwoven with subtler humor and masterful delivery and timing. It is also sociological SF, for the society of the kindly professor Jones, circa 1961, is vastly different today. Riding a bicycle to work and eating health foods are not the kooky eccentricities today they were then, and our views on such things as sinister Russian agents and the Pentagon have had several alterations since those pre-Cuba, pre-Indochina, pre-watergate times. It's in B&W, and the rental is low...get it for your next regional con or campus film festival, and enjoy.

(Damn--I still have one of those plastic ZOTZ coins they gave away when the film opened somewhere--that dates me. I also have a first edition of the book, and was surprised to see that it was intended as a serious exploration of the moral difficulties of using the supreme power of life and death. Rather like the old fifties paranoia film, 21 Days; all tied up with terror of the Commie Menace. It's odd to see how far the thing went in becoming a slapstick comedy. --Ed.)

Lord of the Rings: Let's face it, nobody is going to make a version of anything by Tolkien that will really be satisfying to true fans, anymore than they are with the bible. Bakshi's effort is a first-rate attempt, and he deserves high marks for pioneering in several kinds of special effects, especially creative use of rotoscoping. Aragorn and Galadriel (and Gollum!--Ed.) are especially well done, and the overall effect is reasonably faithful to the original, albeit several hundreds hours of vital footage have been omitted. JRRT's technology, especially the Mithral (TM) Titanium-boroceram-silver composite armor and Galdalf's battle with the Balrog are as good as anything Walt and Roy ever did. But shortcomings abound.

The "feel" of Rivendell and the Elvish universe remains, but Tom Bombadil has been thrown out completely, and the richness of the endless layers of eating, drinking, singing, etc. that Tolkien dwells on interminably is missing. I haven't read LOTR in fifteen years, but I still noticed some crippling omissions.

Another problem: JRRT leans heavily on supplemental materials, maps, tables, geneologies, glossaries, etc. A hardcore fan can probably draw the Ballantine and Harvard Lampoon Middle Earth maps from memory, and will be unhappy about all the neat stuff left out, especially the songs and poems, and will no doubt writte long letters in impeccably rhyming Angersath to Bakshi complaining about the technical omissions. How about the non-fan, the dude off the street who takes his girl to a movie on Saturday night, and with luck as seen the Xerox version of The Hobbit? How the hell is he supposed to know what the devil is going on? The film does fill in with excellent narration from time to time, but there are no maps!
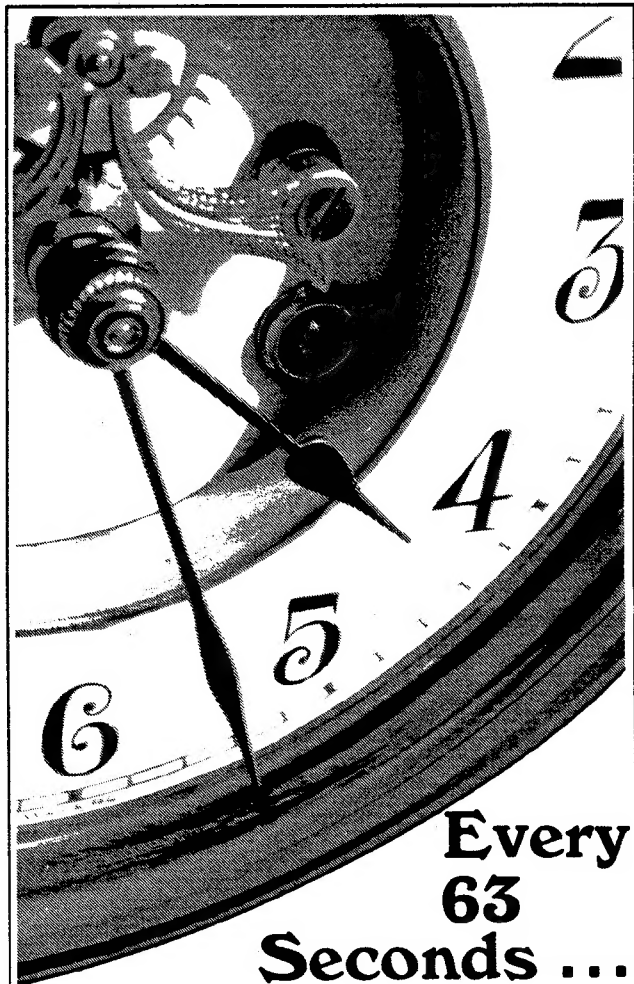
Also, individually, there are great Orcs, Nazguls, etc. but in the battle scenes the rotoscoping gets out of hand, and the thing degenerates into hordes of dim shapes in grey and brown SCA bathrobes struggling in the dirt. Where are the bright colors and flashing armor that were so fondly evoked, especially on the good guys' side? Sigh. Bakshi needs a couple hundred million dollars and a System 480 with good interactive color graphics software.

Buck Rogers in the 25th Century: Glen Larson and the Triumph of Skiffy "You don't mean to say you actually read that terrible Buck Rogers Sci-Fi stuff?????"

Well, lady, in fact, once upon a time I did. I don't remember a heck of a lot about it. It seems that the title novel and the sequel, The Air Lords of Han, were pretty routine '30's pulp; hordes of good Mongols vs bad Mongols in the far distant future, and a crazy Caucasian from the past who keeps trying to get them to set aside their proton rifles and blasters and fight with manly Western weapons like axes and 1906 Springfields with sawtooth bayonets. Pretty damned bloody and pointless, if I recall.

Then there's the movie. Somebody musta bet ol' Glen that he couldn't remake the comic strip with a coupla gross CSG surplus turbolasers and have it come off a poor parody of Starwarz. Hah! Feldercarp!

Every 63 Seconds ...

There are several ways this could have gone: It could have been a kind of _Male Barbarella_ vs _Flesh Gordon_ but that would have been difficult to do with a PG rating. It could have been another _Sleeper_, except Jaffe and Allen have too much clout in Tinseltown, and Larson has about as good a chance of topping Woody's gags as Cosmo Klein has of taking out Darth Vader with a moopsball hammer. (Sorry, Cosmo, no offense, and the _Look_ picture was FB.) (Yeah, and did you see how nice Jeff and Carol smiled when I pushed the button on the HT?--Cosmo)

Anyway, there were lots of ways this turkey could have gone, but none of them got going.

Bad schtick: (A) _Ruins of the Galactic Capital in Chicago_... Jeff, you swine! Who did you bribe? Why the hell are they short of water when not only the oceans but Lake Michigan are intact? (Because the Water Department was on strike that year, and even water molecules know better than to cross a union picket line!--Ed.) (B) _Tin Robot does Porky Pig Imitations through a vocoder_.... (C) _Robot voices come p out of a tamborine built by a drunken Robert Kleiner_.... (D) _Bad Mongols wear funny helmets that they were going to use in Battlestar Galactica, only Lorne Greene couldn't keep a straight face when anybody was wearing them, so they went to the King Tut models with the lights that shine in the pilots' eyes._

There were fun moments, like the stuffed=shirt diplomatic dinner and the ditherng greybeard politicians (Larson could probably do a good _Retief_ movie) or the outraged holovision call from the Emperor to his bungling Daughter. But most of it just doesn't work. For example, there are not-too-subtle hints throughout the film leading to a hell of a martial arts battle between Buck and Killer Kane (wasn't he a herbicide dispenser used to kill dandelions?--Ed.) played by Henry Silva, he of the incredible Karate duel with Frank Sinatra in _The Manchurian Candidate_. So what happens? The big confrontation never takes place. How does Buck win his freedom? By kicking a Eunuch in the balls! SNURKSNURKSNURK...

The Winds of Kitty Hawk: The Ohio Empire & Icarus Montgolfier Armstrong

There is an underhanded conspiracy afoot to ensure that the stars will be conquered by a race of clear-eyed, softspoken beings from the state of Ohio. Item: Capt. James T. Kirk, born in the ancient Terran district of Ohio. Bullard of the Space Patrol: ditto. In the _Martian Chronicles_, they even launch rockets from there. Neil Armstrong had dreams as a little kid that he could simply hold his breath and float off into the sky. God knows what the gnomes of Wapakoneta were doing to the gravitational constant in those days. PBS is running again the special on the Wright Brothers, and for Techies it's a must. The flying sequences are fantastic, and Michael Moriarity as Wilbur is a spooky evocation of Neil Armstrong. On _Galactica_ the other night they were doing a bit about receiving fragmented DX pieces of the Apollo 11 S-band transmissions, and there at the commercial break was the ol' boy himself, selling service contracts for Chrysler. And Frank Borman lost my luggage over Easter vacation. It all makes you a little sad, somehow.

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DUNTEMANN'S LAWS

Techie-Talkies? Ahhh, yes. Possible? Of course. Likely? Absolutely not. The concept is tremendous, and it has fallen victim to something I am going to call Duntemann's Two Laws.

For those of us who haven't been around since issue #3 or thereabouts, let me rehash. We postulated a network of two way radios with a selective calling system based on touchtone tones. Anyone within the Techie Talkie network could conceivably dial up any other member without disturbing anyone else in the network by tapping in a two or three digit touchtone code.

We tried. I put together a couple of crude receivers and transmitters which were mighty cheap. Problem was, they didn't work, or worked so poorly as to be unacceptable. I scrapped that approach (the approach of making radios from the ground up out of junk box parts) and investigated assembling a radio from commcerially available receiver and transmitter modules. This would probably work, but would kick the cost up past $125.00 per unit.

Some of us have that kind of money to kick around. Most of us don't. And one rich member with a solid chrome Techie Talkie would be about as effective as the proverbial one hand clapping. I found myself not nearly engineer enough to design radios from old TV guts and Poly Paks bargain assortment capacitors. A guy with enough RF savvy could do it, certainly. But I'm not the man.

I find myself face to face with some bare facts I would like to call Duntemann's Two Laws. To wit:

    I. CHEAP TECH IS NOT EASY

    II. EASY TECH IS NOT CHEAP

This is so obvious that it's easy to miss. A lot of the real value in a high tech device is R & D. If that weren't true, engineers would make about as much as dishwashers. You either do that R & D yourself, or you pay someone else to do it. We either engineer Techie Talkies ourselves, or we pay someone else to do it. This is why commercial modules cost so much. An engineer or group of engineers sweated blood to make them work. Blood is expensive.

Heathkits cost about as much as assembled units of comparable complexity and quality. Why? The money you save by doing assembly yourself was soaked up making that assembly easy enough for the rankest idiot to do it. You can save a lot of money buying 'bare board' kits from the backs of magazines, making do with a single badly mimeoed instruction sheet, and adding a case on your own. One marvelously inexpensive transmitter kit consisted of a Baggie containing some parts, a circuit board, and an index card with a schematic on it.

Going a step downward toward cheap, you can make a project from a magazine story by etching your own board, finding your own parts, and somehow putting it all together. At the bottom level you start with a design textbook, some sheets of paper, and grind the gadget out of whole cloth.

The catch is that every level going down from Heathkit requires a little more technical ability. With Heath you only have to know how to solder. Bare board kits usually tell you how to put them together, but say little about troubleshooting. What if the damned thing doesn't work? You had better know how it functions, and you had better have the equipment to trace misfunction back to its source, or you've lost the investment of money and time. If you build from a technical article, you had better know how and where to substitute components you can't locate. You had better know

how to wind coils. Non-kit projects of any decent
complexity seldom work perfectly the first time
you feed them power. You have to tease and prod
them into operation, and sometimes keep on with
adjustments and improvements until the thing
really works well. .

Self engineered projects frequently never work
at all. That is how engineers learn to be better
engineers.

We have been hampered in this project by the
puzzling lack of magazine projects detailing
portable 2-way radios. I suspect this is because
such things are fiendishly hard to engineer. They
certainly are popular. I can't imagine why ham
radio magazines haven't printed any such projects.
Maybe they will someday.

In any case, the techie-talkie program has
only one hope, the hope I put rather bluntly and
loudly in Pyro Special Issue #13. The hope is
for a majority of GT techies to get ham radio
licenses and really get into RF. Those junior
engineers who really catch on may well be able to
make a tremendously inexpensive talkie from odd
parts. The rest of us can scrimp and save and buy
commercial FM handhelds for $150-$200. The bottom
line is this: You either do the engineering
yourself, or you pay someone else to do it. If
you want a Techie Talkie, you either become a
better engineer, or you become a little richer. I
hate to say it, but that's just the way it is.

✿

NOTES ON 'THE TECH OF LOVING'

BY CHUCK OTT

Jeff--Thanks for "The Tech of Loving." It was
a peach of an essay, and I hope it sparks a lot of
discussion in Pyro.

But still--before I became a tired old man of
thirty I was an impressionable young lad of
twenty-nine, and for the benefit of other
impressionable young lads perhaps I ought to
impart some of the avuncular wisdom I've earned.
After all the hard usage of cruel fate, I have
learned (here I pause, settle my paunch, take a
puff off my cigar and sip a little whiskey before
laying this stunner on you) that there is no
technique for loving which works reliably. Not
one, not ever.

I have three miniature essays here, with cute
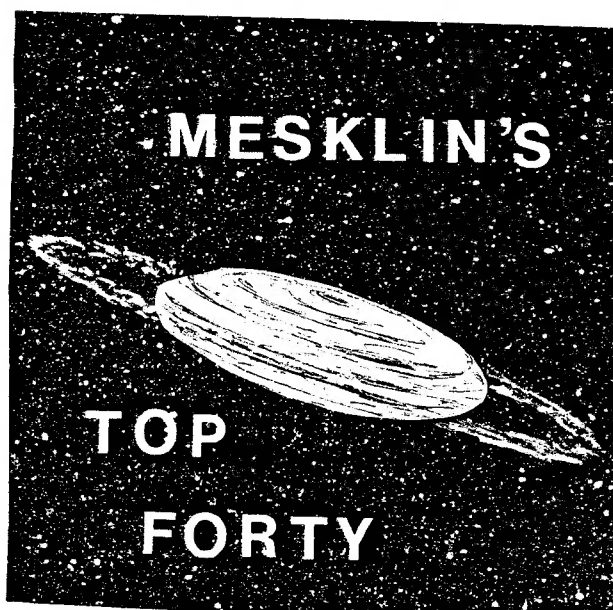titles.

(1) Admittance Not For Everybody

Here's a fundamental limit to technique in
love: some people just don't respond to it. It's
true enough that the homeliest woman or no-account
man can find a partner sooner or later. But ;ove
is not for everybody and the reason, though I hate
to say it, is that not everybody is worth loving.

Love starts with you. The ability to either
give or accept love depends on a certain level of
character development, a certain stiffnesss of
personality backbone. Some people never grow
up--they never face adversity, or, having faced
it, they give up. Some people's personalities
never seem to gel, so that they are always in the
process of becoming but never willing to take a
stand and define what they are. Some people are
just shallow, down to the "real inner man."

What can you do with people like that? Can
you listen carefully and considerately to people
who have nothing to say? Can you explore the
depths of someone who has none?

Love is indeed hard work, but a lot of the
hard work has to be done on yourself, and it has
to be done before you begin to love another. Many
of the qualities which are necessary for love
don't grow out of love, but are personal
attributes like humility, self-respect, and humor.
These you either grow your own, or do without.

I hasten to add, though, that being a good
enough human being to be love-able is no lofty,
distant goal. Just like getting the cotton out of
a bottle of aspirin, it's a trick anybody can
learn to do with a little patience. Besides, the
nicest thing about love is that real lovers come
in only one size: they're invariably much too
good for you. If we only got the lovers we
deserve, we'd all be in trouble.

(2) The Hardly Boys in "The Mystery in the
Fish Tank"

You can't win back a love which has faded by
promising to take out the garbage in the future,
or by swearing off other women or by learning the
Hong Kong Propeller Position. You can't win back
a love which has faded, at all.

Anybody who has kept tropical fish knows that the little bastards have a positive talent for dying--indeed, it's the only trick some of them ever learn. You can follow the feeding, cleaning, and lighting schedule in the book with the same devotion an Elvis-imitator polishes his hip-swivels, and the fish still turn belly-up in the morning. Is it your fault? Hardly! Fish just do that, that's all.

Love affairs can end the same way: they just do that, that's all. It's foolish and self-destructive to believe that any technique will keep a love relationship alive. If your love craps out, it does not mean that you didn't work hard enough, or that you have bad breath, or that your husband/wife/dog found another. It means exactly nothing, except that you too are heir to the ills of mankind.

I've been through this. I spent a couple of years trying to win back a woman I'd lost: I begged, pleaded, I bought her presents, I wrote her poems, I offered to try the Hong Kong Propeller Position. (She wasn't interested.) After awhile I got tired of thinking of myself as The Creature From the Black Lagoon. "Self," I said to myself, "you are a reasonably good person. You're considerate of your friends, you're nice to your mother, you refrain from farting in closed elevators. Surely some other woman will be glad to have you." Eventually some other woman was, though it took a year and a half, and from all this I learned it doesn't pay to lose faith in yourself.

(3) Some Days You Shoulda Stood in Bed

In one of Al Jaffee's Snappy Answers to Stupid Questions, a traffic cop is giving a ticket to a woman who asks, "Did I do something wrong, Officer?" The cop replies, "No, today we're giving out tickets for doing something right."

Unfortunately, this really happens to some people in love: some days you get penalized for doing things right.

At least a few times in everyone's life, as readers of Passages know, the feeling arises that somebody else has got your life all planned out, and there's nothing left to do but follow the script. This happens a lot in college, when you've finally declared your major in Paraguayan Paleobotony and are wondering whether you'll really enjoy being a Paraguayan Paleobotonist for the rest of your life. Another comes when you're settled into a job (I'm facing this) and are wondering whether it's worth twenty years with the company to be promoted to Assistant to the President for Thursdays. The usual reaction to this mood is to make a sudden move out of the situation you're in.

In general, few of us can face the prospect of an irrevocable fixed destiny for ourselves, even if it's perfectly pleasant.

And the hardest trap to get out of is the one you've talked yourself into. "She's a lovely girl," you say to yourself. "I love her, and she loves me. She's exactly what I've been looking for, she likes the things I like, we get along famously. So why do I feel boxed in?"

I know of no cure for this trap except endurance. Sometimes you can wait the feeling out, and it passes away. But again, there is a fundamental limit to technique. Even doing things exactly the way you should doesn't guarantee success.

So that's my idea of the state of the art: it does depend on luck, it does require magic, some days you can't win for losing. Technique for loving is about the same as all that technical advice I get about writing. It is mostly useful for avoiding booboos, rather than being a blueprint for creating anything new. When you know that everybody goes tumbling head-over-teakettle once in a while, you can accept it and drink the pain when it happens to you.

By the way, last week's Science News had a fascinating article about human sex-related pheromones (they turn out to be carried by body sweat and not genital secretions, as was first suspected) which suggests all sorts of swell ideas about aphrodesiacs...

(Swell. When do I sweat the most? When I'm writing SF. There ain't no justice. Thanks, Chuck. You provide a necessary Yeahbut to my typical head-over-heels enthusiastic approach. Still, I smell an application of Sturgeon's laws here. Love is only one part of the body of human endeavor. Everything depends on luck; everything requires magic, and Murphy waits in every corner. To a degree. Maybe my method isn't an absolute guarantee of success, but it sure as hell will improve your chances. Write some more. Please.--Ed.)

"THREE IN THE FRONT, THREE IN THE BACK" INDEED! BAH!

HIGGINS
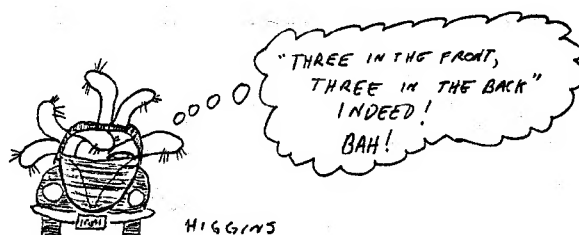
THE BOX THAT FOLLOWS A PLAN

Unlike the Flying Wing and the Rolamite (how many of you know what that is?) the computer is a fundamental advance in technology not much less important than that of the wheel. It's gonna be here for awhile. So it troubles me that many people in GT are still scratching their heads and saying, "Huh?" when confronted with even relatively BASIC (sorry) computer material. I discovered computers relatively recently myself, so I can get into that feeling. The fundamental idea behind computers is not obvious, especially when hiding behind a smokescreen of ROM, RAM, EPROM, EAROM, CPU, I/O, LDI, JNZ, DMA, FORMAT, GOTO, and GIGO. (especially GIGO) Maybe this will help.

Machines are built to do particular jobs, and their functions are implied by their structure. That sounds heavy, but it's not; a copy machine has a paper feeder and an imaging system, so you would hardly expect it to go out and harvest alfalfa. Furthermore, altering a copy machine to make it go harvest alfalfa would require replacement of about 500% of the copier's parts into completely new configurations. Both machines are quite specilized, and each does one thing particularly well.

A computer is one step toward a general-purpose machine. It can be set up to add columns of figures, or it can be set up to draw pictures on a tv screen. It can be set up to construct complex sound waves, or it can be set up to count red blood cells in a drop of blood. "Setting it up" is deliberately made as easy as possible, with as little change to the machine as possible. Today, though a computer may well function as a copier (in some senses) it still can't harvest alfalfa. Computers are one step toward being general purpose machines. There will be other steps.

Computers have not always been electronic; that's just the best way we know of to make them today. The first computer, ENIAC, was a mechanical nightmare including a hundred tons of spinning camshafts and chattering relays. It was a computer, however, because it could be set up to

do different things with only minor changes. (Minor here meaning anything short of major reassembly.) This "setting up" process is the fundamental idea behind computers.

Most simple activities can be broken down into many small, simpler activities. Pounding a nail into a plank can be broken down into three activities: (1) Raising the hammer; (2) Taking aim; and (3) Bringing it down on the nailhead. Performing these actions in the order 1;2;3;1;2;3;etc. will drive your nail into the plank quite nicely. If you keep it up you'll send the nail right through the plank and smash the plank. Something else is needed. Add on: (4) Check to see if nailhead is flush with plank. If so, stop, if not, start sequence again. The diagram below:

① RAISE HAMMER
② AIM
③ HIT NAIL
④ IS NAIL FLUSH?
   IF YES, STOP
   IF NO, GO TO ①

might enable a rather dumb nail-driving computer to do its simple-minded thing. It also strongly resembles a simple computer program.

The fundamental idea behind computers is that the computer is capable of a number of very simple actions. These actions can be combined in different orders, allowing the computer to do different things. The ordered list of activities (program) is nothing more than a plan of action. This is why computer guru Ted Nelson called the computer "A box which follows a plan."

Way back in the 18th century, a man in France put together a loom with a difference: it fed a string of thin wooden slabs, each with a certain pattern of holes in it. The slabs were pulled under a block with little fingers that slipped into the holes and jiggered the mechanism to weave a different pattern for each slab. By stringing the slabs together in different orders, different types of patterns could be woven automatically. As might be expected, the Weaver's Guild raised holy hell, but labor unions have always been collections of morons with their heads up their asses. As far as I'm concerned, this loom was the very first computer, and it did its thing more than a hundred years before electricity was harnessed for the first time. It followed a plan.

A chappie named Babbage tried hard to build a computer about fifty years later. Metal cams are a lot faster than wooden slabs, so he used metal cams. He failed because of the sloppy machining practices of that day; once he assembled his huge, ingenious collection of cams, the shafts were too crooked to turn. If he had been able to complete and perfect his machine, it would have been very much like ENIAC powered by a steam engine, and might have changed the course of history. Imagine how the Civil War might have gone if both sides had had mechanical computers to help design weapons. Or if the Germans had had one to help design an atomic bomb...

Until Bill Higgins discovers some tachyons, the fastest things we know of will be electrons. This is the only reason computers are electronic, but it's a very potent reason. Babbage would have had a computer if an 1825 lathe could turn a straight shaft. From now on, to some degree, we'll be talking electronics.

Modern computers recognize a few hundred distinct little steps. The easiest to understand are instructions to add, to subtract, (some very recent ones can also multiply and divide) to perform logical manipulations like OR, AND, or exclusive OR. What a programmer does is arrange these steps in memory so that the computer can follow them and do something useful. You can think of memory as a stack of cubbyholes. Computer instructions can be placed in these cubbyholes. Most hobby type computers have 8 or 16 thousand of these cubbyholes, with the maximum (for a number of subtle reasons) usually being 64,000.
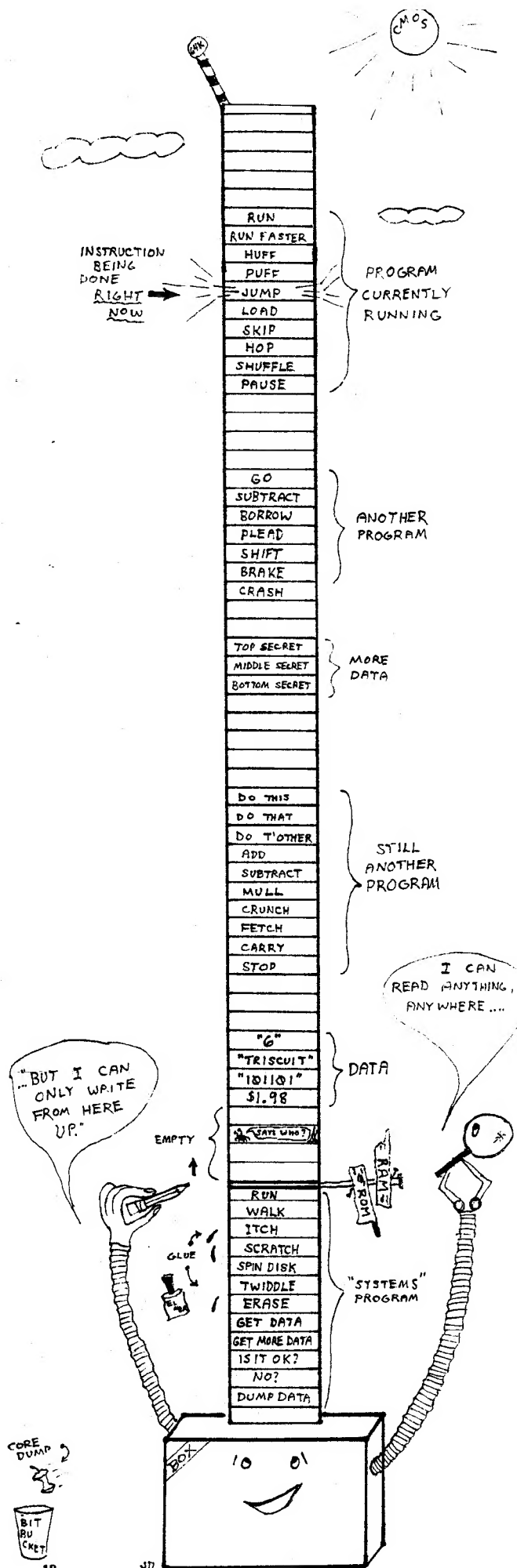
Sometimes, when instructions are placed in cubbyholes, they are glued in. They cannot be changed; such "glue" is usually pretty permanent. This is called ROM. (Read Only Memory) These glued-in instructions usually do very common things, like pulling other programs in off a disk or tape. They are always in the cubbyholes, and don't go away when you turn the power off. ROM can be damned handy for "utility" type programs that help you write other programs.

Usually, instructions are placed into cubbyholes without glue. This kind of memory is called RAM. (explaining the acronym might be confusing.) They can be put in and pulled out, or erased, or moved elsewhere at any time.

Programs may be stored on a magnetic disk or casette tape. The computer cannot follow such stored instructions directly. A program in ROM must move the instructions off the disk into RAM, and _then_ the computer starts executing the instructions. This was dramatically shown at our housewarming party, when my computer malfunctioned and could not load a game off a disk. The game board would start to appear on the screen, but halfway down it hesitated and stopped. The computer failed to load the game, and flashed a message to that effect on the screen.

More than one program may exist in memory at once. You can tell the computer which program to follow. It will find that particular list of instructions in memory and start doing them. When you like, you can tell it to stop and go do something else.

When a program "blows up," the computer itself remains intact, but it scatters little bits of instructions all over the place. Or the computer may "get lost" in memory and start trying to execute the middle of a program without first executing the beginning. This doesn't always work. The bad programs may have been loaded poorly from the disk, or written poorly by the programmer.

Computers seem to do very difficult, complex things. In fact, they only do very simple, tiny steps, but they do them _exceedingly_ fast. Most computers can do 500,000 instructions in a second without getting winded. Some are a great deal faster. Never forget that a computer program is only a list of little instructions, and the computer takes them one at a time. If even _one_ of those instructions out of many thousands gets scrambled up in its cubbyhole, the computer will mostly likely trip on it and fall on its electronic face.

Computers are the greatest razzle-dazzle artists of our age, but at the bottom of it they are pretty dumb. As I said at the beginning, they are one step toward a general purpose machine. There will be further steps. And somewhere along that ladder sits the best general- purpose machine we know of at this time: man.

❀

HIGGINS
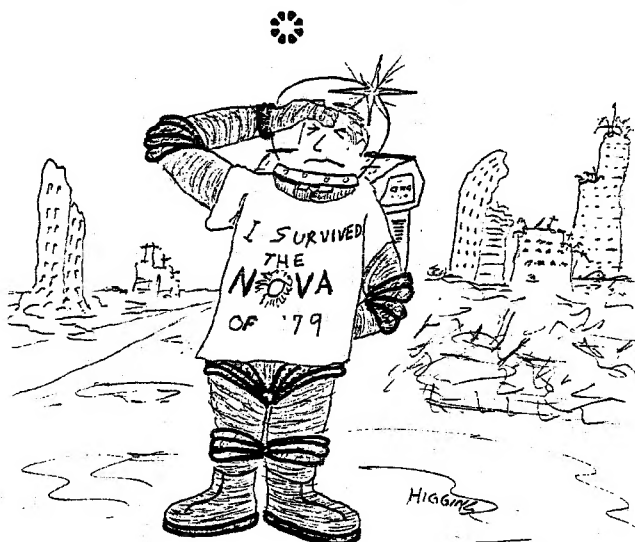
Dark Starlost in Space:
2001
That Chris Cloutier
sure cracks me
up!
A-hem!

JANN FRANK

was hatched in Kansas City MO in 1953. My parents, God bless 'em, provided me with a good, loving, stimulating environment. At an early age I was introduced to books, and by some strange alchemy I gravitated towards science fiction and science-oriented literature. (One of my favorite books was a Little Golden Book on dinosaurs.) (Mine too--as a child once said, "Now that dinosaurs are safely dead, we can call them clumsy and stupid." Kids know better than to mess with Tyro Rex.--Ed.) My folks didn't neglect other forms of self-expression, however. When I grabbed up a pencil and went after the nice, blank walls, Mom gave me reams of blank paper instead...and I've been scribbling ever since.

I entered school, like any other kid, but was uninspired by the experience; bored out of my skull, I took to drawing during class. As a result, my abilities in a subject like mathematics are a bit limited, but as long as I have access to a calculator, what the hell. My only other escape turned out to be the school library; it was there that I had my formal introduction to SF. I read the entire school collection, maybe 15 books in all. Lucky Starr and Arthur C. Clarke, you saved my life!
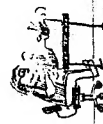
In high school, I fell in with a group of kindred souls (a new experience at the time) and we started an SF group and published a horrible little rag called PRISM. Whatever PRISM may have been, it was my energy of activation: I've submitted my scratchings to zines ever since. (Note: I will pay 50 times the cover price on PRISM to buy back any existing copies.)

After graduating from high school, I nearly caused cardiac arrest in my folks by announcing that I planned to attend college; up until this time I had been a C & D student. I went anyway, studied biology, and shocked the hell out of my folks by doing well. Armed with an MS in biology, I discovered I couldn't find a job. I spent almost a year surviving by doing, of all things, freelance art jobs. (All thigns come full circle eventually.)

Currently, I am working as a chemist. I know next to nothing about electronics, but I'd like to learn something about it. (All you self-taught electron-pushers, drop me a line.)

I'm looking forward to some interaction with you people in GT, and methinks it will be an interesting relationship.

❀

GENERAL TECHNICS WEEKEND

Hey! we can make a [funny / serious / ridiculously complicated] [purple / massive] [movie / song / cartoon / puppet show] [computer / weapon / program / robot / stuffed animal] about [Tullio / Claude Degler / Poly-Paks / Trekkies / zeppelins / Techies]

and his / and their — which will [tapdance / play a synthesizer / shoot pinball / slice, dice, and make Julienne Potatoes / make Marshmallow Treats]

trip to the store for munchies

while [destroying the Earth / looking kluged / looking impressive / and really scare Mundanes] [but not do much / and cost a lot]

which we can sell at cons — if we can only scrounge some [time on the U of I's Cyber / fluorescein dye / really big capacitors / laser tubes / Plexiglas]

and some [money / teddy bear eyes / uranium bricks / dry ice / Triscuits / thermite]

[from the manufacturer / from my grandfather / in a garbage dumpster / out of an old Xerox copier]

and we can [build it in / hide it in / steal it from / somewhere else]

[Steve Johnson's basement / the Antlers Bar / Benson, Arizona / the world's largest Vertical Lift Bridge in Houghton / Silicon Gulch / Lisle]

and write it all up in Byte

and frank it through Apa-Tech

and hold a panel on it next Minicon

then, to celebrate, we'll have a [party / Berserker Weekend / wake / Permanent Floating Riot]

tour Fermilab with

have a picnic at the Cyclotron Grove with

go to the Santa Fe Hamfest with

get a back rub from

play with [Todd's laser / the buffalo]

and [Todd Johnson / Bill Higgins / anybody who wants to come / Jeff & Carol Duntemann / lots of Chicago techies / Mesklinites]

so let's [phone (312) 355-7619 / dispatch a pigeon / semaphore / Lens a thought / shout real loud]

to let them know we'll be [coming / driving past / sleeping on their] [floor / ceiling]

on the weekend of 10 August!

at Todd & Bill's place:
4744 Hill Trail Drive
Apartment 1B
Lisle, Illinois 60532
(just a stone's throw
from Ogden Avenue)
where we'll

MUGHOT ROW
IS YOUR MUG HERE?

Yeah, I know I take lousy pictures. But a cartoonist who had
better remain anonymous said that anybody could draw sideburns
and glasses on a brick and it would look just like me. So here
I have drawn sideburns and glasses on a brick. If it doesn't
look like me, I think I know where to send the brick...

Donna Struwe

Chris Cloutier

Jim DeLongpre

Lanny Waitsman

GIGO

FROM DONNA STRUWE--To the Whatcon conspirators:
For those of you who thought it appropriate to
present me with a certain piece of artwork (done
by a certain obscure artist named Phil Foglio)
thank you, not only for the plate, but also for
being there.

Great Moments in Scientific History: Archimedes has a cosmic revelation in the bathtub and gets turned on to displacement theory. Completely blew his mind (see illustration) jann 79 Later blown away by Roman soldier.

The next time some one tries to
tell you that scientists are a
dull and somber lot, show them
this picture... they don't know
the real story!

Hip before his Time...
jann 79
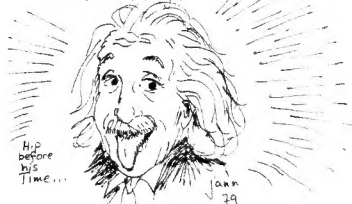
Meet Albert Einstein,
One WILD & CRAZY
GUY !!!
(See Science News, March 31, 1979 for)
the Amusing and Enlightening
Story.

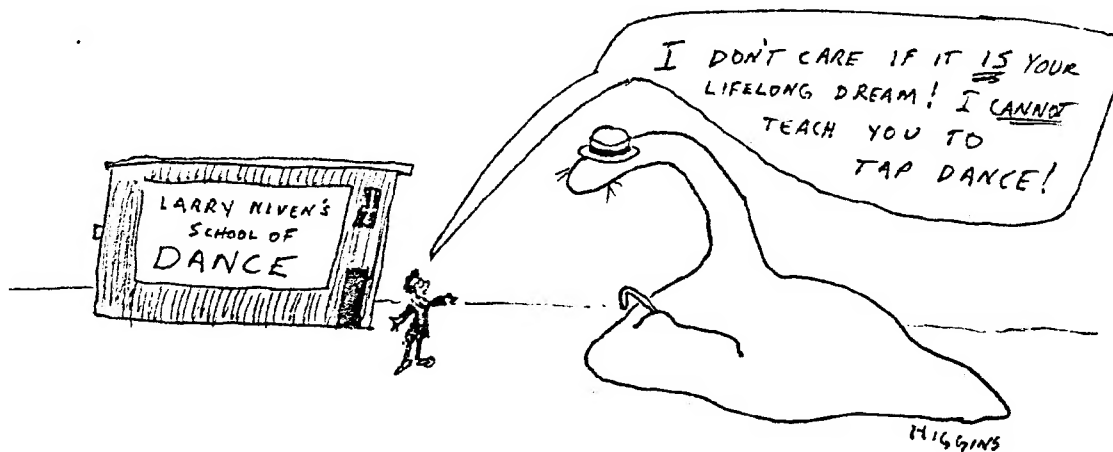## FAREWELL, ALBERT...

...AND THANKS
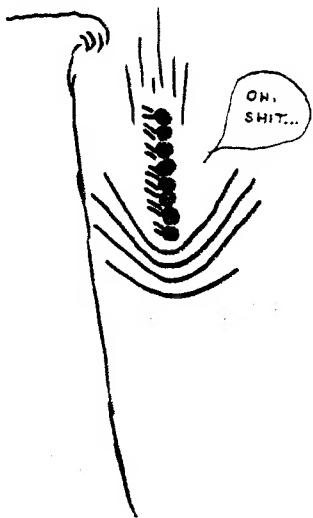
EUCLIDEAN
(FLAT)
EINSTEIN

POSITIVELY
CURVED
EINSTEIN

NEGATIVE
CURVED
EINSTEIN

- HIGGINS

RECENT BOOKS

Titan, John Varley

Broca's Brain, Carl Sagan
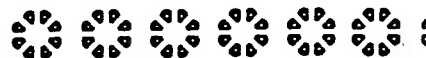
Dimension of Miracles, Robert Sheckley

Shock I, Richard Matheson

The Instrumentality of Mankind, C. Smith

The Ringworld Engineers (part 1), Niven

MESKLINITE
ARAB

—JD

JEFF & CAROL DUNTEMANN
301 SUSQUEHANNA ROAD
ROCHESTER NY 14618

**GENERAL
TECHNICS**